

405 KAR 16:220. Roads.

RELATES TO: KRS 350.020, 350.028, 350.085, 350.465

STATUTORY AUTHORITY: KRS 350.020, 350.028, 350.465

NECESSITY, FUNCTION, AND CONFORMITY: KRS Chapter 350 in pertinent part requires the cabinet to promulgate rules and administrative regulations establishing performance standards for protection of people and property, land, water and other natural resources, and aesthetic values, during surface mining activities and for restoration and reclamation of surface areas affected by mining activities. This administrative regulation sets forth requirements for the location, design, construction, maintenance, and removal or permanent retention of roads and associated drainage structures.

Section 1. General. (1) Each permittee shall design, construct, utilize, and maintain roads and restore the area to meet the requirements of this administrative regulation and to control or minimize erosion and siltation, air and water pollution, and damage to public or private property.

(2) To the extent possible using the best technology currently available, roads shall not cause damage to fish, wildlife and related environmental values and shall not cause additional contributions of suspended solids to stream flow or to run off outside the permit area. Any such contributions shall not be in excess of limitations of state or federal law.

(3) The design and construction of roads shall be certified by a qualified registered professional engineer as being in accordance with Sections 2 through 5 of this administrative regulation, except to the extent that alternative specifications are used. Alternative specifications may be used only after approval by the cabinet upon a demonstration by a qualified registered professional engineer that they will result in performance, with regard to safety, stability and environmental protection, equal to or better than that resulting from roads complying with the specifications of this administrative regulation.

(4) All roads shall be removed and the affected land regraded and revegetated in accordance with the requirements of Section 7 of this administrative regulation unless:

- (a) Retention of the road is approved as part of the approved postmining land use or as being necessary to control erosion adequately;
- (b) The necessary maintenance is assured; and
- (c) All drainage is controlled according to Section 4 of this administrative regulation.

Section 2. Location. (1) Roads shall be located, insofar as possible, on ridges or on the most stable available slopes to minimize erosion.

(2) No part of any road shall be located in the channel of an intermittent or perennial stream unless specifically approved by the cabinet.

(3) Stream fords are prohibited unless they are specifically approved by the cabinet as temporary routes during periods of construction. The fords shall not adversely affect stream sedimentation or fish, wildlife, and related environmental values. All other stream crossings shall be made using bridges, culverts, or other structures designed, constructed, and maintained to meet the requirements of Section 4 of this administrative regulation.

Section 3. Design and Construction. Roads shall be designed and constructed in compliance with the following standards in order to control subsequent erosion and disturbance of the hydrologic balance.

(1) The roadway width shall be appropriate for the anticipated volume of traffic and the size, weight, and speed of vehicles to be used.

(2) Vertical alignment. Except where lesser grades are necessary to control site-specific conditions, maximum road grades shall be as follows:

- (a) The maximum grade shall not exceed 1v:6.5h (fifteen (15) percent).
- (b) There shall be not more than 300 feet of grade exceeding ten (10) percent within any consecutive 1,000 feet of road.
- (3) Horizontal alignment. Roads shall have horizontal alignment as consistent with the existing topography as possible, and shall provide the alignment required to meet the performance standards of this administrative regulation. The alignment shall be determined in accordance with the anticipated volume of traffic and weight and speed of vehicles to be used. Horizontal and vertical alignment shall be coordinated to ensure that one will not adversely affect the other and to ensure that the road will not cause environmental damage.
- (4) Temporary erosion control measures shall be implemented during construction to minimize sedimentation and erosion until permanent control measures can be established.
- (5) Excess or unsuitable material from excavations shall be disposed of in accordance with 405 KAR 16:060, Section 4; 405 KAR 16:140, Section 1; 405 KAR 16:190, Section 3.
- (6) Vegetation shall not be cleared for more than the width necessary for road and associated ditch construction, to serve traffic needs and for utilities.
- (7) Road cuts.
 - (a) Cut slopes shall not be steeper than specifically authorized by the cabinet, and shall not be steeper than 1v:1.5h in unconsolidated materials or 1v:0.25h in rock, except that steeper slopes may be specifically authorized by the cabinet if geotechnical analysis demonstrates that a minimum safety factor of one and five-tenths (1.5) can be maintained.
 - (b) All cut slopes except solid rock cut slopes shall be revegetated as soon as possible to minimize erosion.
- (8) Road embankments. Embankment sections shall be constructed in accordance with the following provisions:
 - (a) All vegetative material and topsoil shall be removed from the embankment foundation during construction to increase stability, and no vegetative material or topsoil shall be placed beneath or in any road embankment.
 - (b) Where an embankment is to be placed on side slopes exceeding 1v:5h (twenty (20) percent), the existing ground shall be plowed, stepped, or, if in bedrock, keyed in a manner which increases the stability of the fill. The keyway shall be a minimum of ten (10) feet in width and shall extend a minimum of two (2) feet below the toe of the fill.
 - (c) Embankment shall be placed in horizontal layers and shall be compacted as necessary to ensure that the embankment is adequate to support the anticipated volume of traffic and weight and speed of vehicles to be used. In selecting the method to be used for placing embankment material, consideration shall be given in the design to such factors as the foundation, geological structure, soils, type of construction, and equipment to be used.
 - (d) Embankment slopes shall not be steeper than 1v:2h, except that where the embankment material is a minimum of eighty-five (85) percent rock, slopes shall not be steeper than 1v:1.35h if it has been demonstrated to the cabinet that embankment stability will result.
 - (e) The minimum safety factor for all embankments shall be 1.25, or such higher factor as the cabinet may specify.
 - (f) The road surface shall be sloped to prevent ponding of water on the surface.
 - (g) All material used in embankments shall be reasonably free of organic material, coal or coal blossom, frozen or excessively wet materials, peat material, natural soils containing organic matter, or any other material considered unsuitable by the cabinet for use in embankment construction.
 - (h) Acid-producing materials shall be permitted for constructing embankments for only those roads constructed on coal processing waste banks and only if it has been demonstrated to the cabinet that no additional acid will leave the confines of the coal processing waste bank. In no case shall acid-bearing refuse material be used outside the confines of the coal processing waste bank. Resto-

ration of the road shall be in accordance with the requirements of 405 KAR 16:190, Sections 3 through 6; and 405 KAR 16:200.

(i) All embankment slopes shall be revegetated as soon as possible to minimize erosion.

Section 4. Drainage. (1) General. Each road shall be designed, constructed, and maintained to have adequate drainage, using structures such as, but not limited to, ditches, cross drains, and ditch relief drains. The water-control system shall be designed to safely pass, at a minimum, the peak runoff from a ten (10) year, twenty-four (24) hour precipitation event or a greater event if required by the cabinet.

(2) Natural drainage. Natural channel drainageways shall not be altered or relocated for road construction without the prior approval of the cabinet in accordance with 405 KAR 16:080. The cabinet may approve alterations and relocations only if the natural channel drainage is not blocked and there is no adverse impact on adjoining landowners.

(3) Stream crossings. Drainage structures are required for stream channel crossings. Drainage structures shall not adversely affect fish migration and aquatic habitat or related environmental values, and shall not adversely affect the normal flow or gradient of the stream or cause increased flow depths which would adversely affect upstream properties outside the permit area.

(4) Ditches.

(a) Drainage ditches shall be placed at the toe of all cut slopes. A ditch shall be provided on both sides of a through-cut and on the inside shoulder of a cut-and-fill section, with ditch relief cross drains spaced according to grade. Water shall be intercepted before reaching a switchback or large fill and drained safely away in accordance with this section. Water from a fill or switchback shall be released below the fill, through conduits or in riprapped channels, and shall not be discharged onto the fill.

(b) Trash racks and debris basins shall be installed in drainage ditches wherever debris from the drainage area is likely to impair the functions of drainage and sediment control structures.

(5) Culverts and bridges.

(a)1. Culverts shall pass the ten (10) year, twenty-four (24) hour precipitation event without causing overtopping of the road and without causing adverse effects upon upstream properties outside the permit area. Bridges and approach fills shall pass the 100 year flood event or where appropriate the 100 year, twenty-four (24) hour precipitation event or a larger event, as specified by the cabinet, without causing increases in flow depths which would adversely affect upstream properties outside the permit area.

2. Drainage pipes and culverts shall be constructed to avoid plugging or collapse and erosion at inlets and outlets.

3. All culverts shall be covered by compacted fill to a minimum depth of one (1) foot.

4. Culverts shall be designed, constructed, and maintained to sustain the structural load from the fill and the weight of vehicles to be used.

(b) Culverts for road surface drainage only shall be constructed in accordance with the following:

1. Unless otherwise authorized or required under subparagraphs 2 or 3 of this paragraph, culverts shall be spaced as follows: spacing shall not exceed 1,000 feet on grades of zero to three (3) percent; spacing shall not exceed 800 feet on grades of three (3) to six (6) percent; spacing shall not exceed 500 feet on grades of six (6) to ten (10) percent; spacing shall not exceed 300 feet on grades of ten (10) percent or greater.

2. Culverts at closer intervals than the maximum in subparagraph 1 of this paragraph shall be installed if required by the cabinet as appropriate for the erosive properties of the soil or to accommodate flow from small intersection drainages.

3. Culverts may be constructed at greater intervals than the maximum indicated in subparagraph

1 of this paragraph if authorized by the cabinet upon a finding that greater spacing will not increase erosion.

4. The inlet end shall be protected by a rock headwall or other protection approved by the cabinet as adequate protection against erosion at the inlet. The water shall be discharged below the toe of the fill through conduits or in riprapped channels and shall not be discharged onto the fill.

Section 5. Surfacing. (1) Roads shall be surfaced with rock, crushed gravel, asphalt, or other material approved by the cabinet as sufficiently durable for the anticipated volume of traffic and weight and speed of vehicles to be used.

(2) Acid- or toxic-forming substances shall not be used in road surfacing.

Section 6. Maintenance. (1) Roads shall be maintained in such a manner that the required or approved design standards are met throughout the life of the road.

(2) Road maintenance shall include repairs to the road surface such as grading, filling of potholes, and replacement of surfacing. It shall include revegetating of cut and fill slopes, watering for dust control, and minor reconstruction as necessary.

(3) Roads damaged by events such as floods or landslides, or by structural failures such as sliding or slumping of the embankment, shall be repaired as soon as practicable after the damage has occurred.

Section 7. Restoration. (1) As soon as practicable after a road is no longer needed for mining and reclamation operations or monitoring, unless the cabinet approves retention of a road as suitable for the approved postmining land use:

- (a) The road shall be closed to vehicular traffic;
- (b) The natural-drainage patterns shall be restored;
- (c) All bridges and culverts shall be removed;
- (d) Roadbeds shall be ripped, plowed, and scarified;
- (e) Fill slopes shall be rounded or reduced and shaped to conform the site to adjacent terrain and to meet natural-drainage restoration standards;
- (f) Cut slopes shall be shaped to blend with the natural contour;
- (g) Cross drains, dikes, and water bars shall be constructed to minimize erosion;
- (h) Terraces shall be constructed as necessary to prevent excessive erosion and to provide long-term stability in cut-and-fill slopes; and
- (i) Road surfaces shall be topsoiled in accordance with 405 KAR 16:050, Section 4(2) and revegetated in accordance with 405 KAR 16:200, Sections 1 through 6.

(2) Unless otherwise authorized by the cabinet, all road surfacing materials shall be removed and disposed of under 405 KAR 16:150, Section 1. (8 Ky.R. 1554; 9 Ky.R. 707; eff. 1-6-1983; Crt eff. 7-3-2018.)